

Interview Summary

Application No.

10/034,234

Applicant(s)

LEE ET AL.

Examiner

Afsar M. Qureshi

Art Unit

2616

All participants (applicant, applicant's representative, PTO personnel):

(1) Afsar M. Qureshi.

(3) _____.

(2) J. Gallagher.

(4) _____.

Date of Interview: 17 January 2007.

Type: a) ☒ Telephonic b) ☐ Video Conference

c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.

If Yes, brief description: _____.

Claim(s) discussed: _____.

Identification of prior art discussed: _____.

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant agreed to amend claims 1, 6, 10, 13, 18 and 21 and cancel claim 2, as suggested by the Examiner, in order to expedite an allowance. Amended claims received via e-mail dated 1/17/2006.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.


AFSAR QURESHI
PRIMARY EXAMINER

1/18/07

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

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Attorney Docket No: 678-787 (P10118)

Via email to Afsar.Qureshi@uspto.gov

**FOR CONSIDERATION BY EXAMINER
FOR ENTRY VIA EXAMINER'S AMENDMENT
NOT FOR ENTRY**

Dear Examiner Qureshi:

The following amendments to Claims 1, 6, 10, 13, 18 and 21 are suggested solely for the purpose of allowing the pending claims, i.e. Claims 1, and 3-24, to progress to issuance. If these amendments are found acceptable, it is respectfully requested that the amendments be entered via Examiner's Amendment.

If a telephone conference or personal interview would facilitate resolution of any remaining matters, please contact me at the number provided below.

Respectfully submitted,

THE FARRELL LAW FIRM, P.C.
333 Earle Ovington Blvd., Suite 701
Uniondale, New York 11553
Tel: (516) 228-3565
Fax: (516) 228-8475

PATENT APPLICATION SERIAL NO: 10/034,234

Attorney Docket No: 678-787 (P10118)AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) A method for transmitting a packet through a plurality of links in a mobile communication system in which a base station controller (BSC) is connected to a base transceiver system (BTS) through the plurality of links, comprising the steps of:

determining whether a specific service uses at least two links, when there is transmission data for the service;

setting up a sequence number in the transmission packet, when the service uses at least two links;

transmitting the packet through a selected link among the at least two links; and

increasing the sequence number after transmitting the packet;

registering a next sequence number in a header of the packet for transmission of the packet through a selected link allocated for the service; and

transmitting a next packet through a second link and transmitting a packet after the next packet through the first link.

2. (Cancelled)

3. (Original) The method as claimed in claim 1, further comprising the step of setting up a sequence number in the transmission packet and transmitting the packet

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through a link when the service uses one link.

4. (Original) The method as claimed in claim 1, wherein the link selection method is a round robin basis.

5. (Original) The method as claimed in claim 1, wherein the plurality of the links include E1/T1 links and use an ATM (Asynchronous Transfer Mode) scheme in which each link is assigned one virtual circuit.

6. (Currently Amended) A method for receiving a packet through a plurality of links in a mobile communication system in which a base station controller (BSC) is connected to a base transceiver system (BTS) through the plurality of links, comprising the steps of:

determining whether a packet is received through a selected link among the plurality of links;

determining whether the received packet is a to-be-received packet by analyzing a sequence number of the received packet; and

sending the received packet to an upper layer, if the received packet is a to-be-received packet, wherein the packet is for a specific service using at least two links, and the selected link is the link among the at least two links;

registering a next sequence number in a header of the packet for transmission of

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the packet through a selected link allocated for the service; and

transmitting a next packet through a second link and transmitting a packet after
the next packet through a first link.

7. (Original) The method as claimed in claim 6, further comprising the steps of:
storing the received packet in a reception buffer and activating a timer, when the
received packet is not a to-be-received packet; and
upon receiving the to-be-received packet before expiration of the timer,
inactivating the timer and processing the received to-be-received packet along with the
stored packet in the reception buffer.

8. (Original) The method as claimed in claim 7, further comprising the step of:
abandoning the to-be-received packet and processing the stored packet in the
reception buffer, upon failure to receive the to-be-received packet before expiration of
the timer.

9. (Original) The method as claimed in claim 6, wherein the plurality of links
include E1/T1 links and use an ATM scheme in which each link is assigned one virtual
circuit.

10. (Currently Amended) An apparatus for transmitting a packet through a

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plurality of links in a mobile communication system in which a base station controller (BSC) is connected to a base transceiver system (BTS) through the plurality of links, comprising:

a memory for storing a last transmitted sequence number and ID of links allocated for a specific service among the plurality of links in association with the service;

a transmission buffer for temporarily storing a transmission packet; and

a controller for setting up a sequence number in the transmission packet based on the last transmitted sequence number, for transmitting the packet through a selected link among the links allocated for the service and for increasing the sequence number after transmitting the packet, wherein

a next sequence number is registered in a header of the packet for transmission of the packet through a selected link allocated for the service; and

a next packet is transmitted through a second link and a packet is transmitted after the next packet through a first link.

11. (Original) The apparatus as claimed in claim 10, wherein the link selection method is selected on a round robin basis.

12. (Original) The apparatus as claimed in claim 10, wherein the plurality of links include E1/T1 links and use an ATM scheme in which each link is assigned one virtual

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circuit.

13. (Currently Amended) An apparatus for receiving a packet through a plurality of links in a mobile communication system in which a base station controller (BSC) is connected to a base transceiver system (BTS) through a plurality of links, comprising:

- a memory for storing a last received sequence number and ID of links allocated for a specific service among the plurality of links in association with the service;
- a reception buffer for temporarily storing the received packet; and
- a controller for determining whether a received packet received through the allocated links is a to-be-received packet by accessing the last received sequence number, and processing the received packet if the packet is a to-be-received packet, wherein
 - a next sequence number is registered in a header of the packet for transmission of the packet through a selected link allocated for the service; and
 - a next packet is transmitted through a second link and a packet is transmitted after the next packet through a first link.

14. (Original) The apparatus as claimed in claim 13, further comprising a timer for counting a time under the control of the controller in order to process packets other than the to-be-received packet.

15. (Original) The apparatus as claimed in claim 14 , wherein the controller stores

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the received packet in the reception buffer and activates a timer if the received packet is not the to-be-received packet, and wherein upon receiving the to-be-received packet before expiration of the timer, the controller inactivates the timer and processes the to-be-received packet along with the stored packet in the reception buffer.

16. (Original) The apparatus as claimed in claim 14, wherein the controller stores the received packet in the reception buffer and activates a timer if the received packet is not the to-be-received packet, and wherein upon failure to receive the to-be-received packet before expiration of the timer, the controller abandons reception of the to-be-received packet and processes the stored packet in the reception buffer.

17. (Original) The apparatus as claimed in claim 13, wherein the plurality of links include E1/T1 lines and use an ATM scheme in which each link is assigned one virtual circuit.

18. (Currently Amended) A protocol performing apparatus for transmitting a packet through a plurality of links in a mobile communication system in which a base station controller (BSC) is connected to a base transceiver system (BTS) through the plurality of links, comprising:

a virtual circuit (VC) adaptation process for setting up a sequence number in a transmission packet based on a last transmitted sequence number upon receiving the

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transmission packet from an upper layer, for selecting a link for transmitting the packet among the plurality of links, for sending the packet with the sequence number and ID of the selected link to a transport layer and for increasing the sequence number after transmitting the packet; and

the transport layer for transmitting the packet provided from the VC adaptation process through the selected link among the plurality of links, wherein

a next sequence number is registered in a header of the packet for transmission of the packet through a selected link allocated for the service; and

a next packet is transmitted through a second link and a packet is transmitted after the next packet through the first link.

19. (Original) The protocol performing apparatus as claimed in claim 18, wherein the VC adaptation process selects the link used for packet transmission on a round robin basis.

20. (Original) The protocol performing apparatus as claimed in claim 18, wherein the plurality of links include E1/T1 links and use an ATM scheme in which each link is assigned one virtual circuit.

21. (Currently Amended) A protocol performing apparatus for receiving a packet through a plurality of links in a mobile communication system in which a base station

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controller (BSC) is connected to a base transceiver system (BTS) through the plurality of links, comprising:

a transport layer for receiving a packet through the plurality of links and sending the received packet to a VC adaptation process; and

the VC adaptation process for analyzing a sequence number of the packet received from the transport layer to determine whether the received packet is a to-be-received packet, and sending the received packet to an upper layer to process the received packet, if the received packet is the to-be-received packet, wherein

a next sequence number is registered in a header of the packet for transmission of the packet through a selected link allocated for the service; and

a next packet is transmitted through a second link and a packet is transmitted after the next packet through a first link.

22. (Original) The protocol performing apparatus as claimed in claim 21, wherein the VC adaptation process buffers the received packet and activates a timer if the received packet is not a to-be-received packet, wherein upon receiving the to-be-received packet before expiration of the timer, the VC adaptation process sends the to-be-received packet to the upper layer along with the buffered packet.

23. (Original) The protocol performing apparatus as claimed in claim 21, wherein the VC adaptation process buffers the received packet and activates a timer if the

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received packet is not a to-be-received packet, wherein upon failure to receive the to-be-received packet before expiration of the timer, the VC adaptation process abandons reception of the to-be-received packet and sends the buffered packet to the upper layer.

24. (Original) The protocol performing apparatus as claimed in claim 21, wherein the plurality of links include E1/T1 links and use an ATM scheme in which each link is assigned one virtual circuit.